

## **EXPRESSION MONITORING FOR GENE FUNCTION IDENTIFICATION**

### **ABSTRACT OF THE DISCLOSURE**

This invention provides methods, compositions and apparatus for mapping the regulatory relationship among genes by massive parallel monitoring gene expression. In some embodiments, mutations in the up-stream regulatory genes are detected by monitoring the change in down-stream gene expression. Similarly, the function of a specific mutation in a up-stream gene is determined by monitoring the down-stream gene expression. In addition, regulatory function of a target gene can be determined by monitoring the expression of a large number of down-stream genes. The invention also provides specific embodiments for detecting p53 functional homozygous and heterozygous mutations and for determining the function of p53 mutations.